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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,381	04/05/2001	Song Chen	I4303.0115	1798

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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS 6TH AVENUE
NEW YORK, NY 10036-2714

EXAMINER	
NGUYEN, VAN H	

ART UNIT	PAPER NUMBER
2194	

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06/22/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/828,381	CHEN ET AL.	
	Examiner	Art Unit	
	VAN H. NGUYEN	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41,43,45,46 and 48-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12, 23, 24, and 40* is/are allowed.

6)☒ Claim(s) *1-11,13-22,25-39,41,43,45,46 and 48-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

DETAILED ACTION

1. This supplemental Office Action is to replace the Office Action mailed on 06/15/2009.

This action is responsive to the amendment filed 03/02/2009.

Claims 1-41, 43, 45, 46, and 48-74 are currently pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-11, 13-22, 25-39, and 41, 43, 45, 46, and 48-74 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Sharrit et al.** (U.S. Patent 5,999,990) in view of **Barners et al.** (U.S. Patent US 4,787,026 A).

As to claim 13:

Sharrit teaches a reconfigurable system comprising virtual machine interface, a virtual machine and a separate reconfigurable apparatus (Figs. 1-7);

the reconfigurable apparatus (communicator 10) coupled to the virtual machine and comprising a plurality of hardware kernels (configurations of reconfigurable resource units RRUs); and the virtual machine interface coupled to the virtual machine and comprising a plurality of software objects (library of configuration files) including a first subset of the software objects (one set / different set of processing functions), a change to a software object (new / updated configuration files, col. 4, lines 14-15) in the first subset of the software objects results in a change in the hardware kernel (RRUs restructure themselves in accordance with the configuration information) associated with the software object [See col. 1, line 54 - col. 2, line 58. It is noted that a set of RRUs with its respective configuration form a kernel which typically is a collection of system management functions].

Sharrit does not explicitly disclose each software object in the first subset of the software objects associated with a different hardware kernel in the plurality of hardware kernels and the virtual machine and the virtual machine interface operate independent from said plurality of hardware kernels.

Barners teaches each software object in the first subset of the software objects associated with a different hardware kernel in the plurality of hardware kernels and the virtual machine and the virtual machine interface operate independent from said plurality of hardware kernels (see Fig.4 and the associated text).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sharrit with Barners because would have managed the operation of a coprocessor in a virtual memory type data processing system in which an Input/Output channel and an Input/output channel controller interconnect the coprocessor to the main processor and system memory.

As to claim 14:

Sharrit teaches the plurality of software objects includes a second subset (library of configuration files) of the software objects, each software object in the second subset of the software objects having at Least one adjustable attribute (new / updated configuration files, one set / different set of processing functions) [Col. 1, line 54 - col. 2, line 58].

As to claim 15:

Sharrit teaches at Least one adjustable 'attribute is a static or dynamic attribute (dynamically altered processing) [Col. 1, lines 56-59].

As to claim 16:

Sharrit an application program interface comprising a plurality of software routines (API of classes), each software routine in said plurality of software routines representing a different communication protocol (machine models), wherein said plurality of software routines comprise software calls to said plurality of software objects (API); and an application program comprising software calls to said plurality of software routines (application layer 140). [Col. 5, line 23 - col. 6, line 64].

As to claims 17 and 20:

Sharrit teaches compiling functionality (linkage functionality, col. 5, lines 56-57). Therefore, it would have been obvious to use a compiler to provide such functionality. Further, JIT compiler for JVM was well known at the time when the present application was filed. Translating is a default function of a typical compiler.

As to claims 18 and 21:

Sharrit teaches resource allocator (resource allocation unit) configured to receive the machine-readable instructions and issue a signal/command to configure a hardware kernel in the plurality of hardware kernels [Col. 7, lines 14-67].

As to claim 19:

Sharrit teaches program for utilizing a plurality of software objects [Col. 5, lines 2-57].

As to claims 22 and 55:

Sharrit teaches a software object in said plurality of software objects is a searcher object, a code generation unit object (Linkage functionality, col. 5, lines 56-57), a finger object, an uplink object **or** a downlink object. Uplink and downlink are typical functions of wireless communication. It is noted that Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement uplink and downlink functions, with corresponding software objects, in Sharrit. It is also noted that the alternatives linked by "or" is interpreted as requiring only one alternative.

As to claims 25-28, CDMA and its variations: IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, WCDMA, cdma2000, and ARIB WCDMA, and TDMA and its variations such as IS-136 TDMA are well known wireless communication protocols. It would have been obvious to support these protocols/configurations in the communicator of Sharrit.

As to claims 51-52:

Sharrit teaches one software object objects is associated with at least two kernels and at least two kernels are associated with one software object in that one application can output to more than one devices and more than one application can access the same device [See col. 1, line 54 - col. 2, line 58 and col.4, lines 18-47].

As to claim 57:

Sharrit teaches "dynamically reconfigured RRUs", col. 10 lines 46-50 that correspond to the recitation of the kernels are configured for different parameters dynamically.

As to claim 63:

Sharrit teaches the objects are updated according to the states of their associated kernels dynamically (new / updated configuration files -used to configure RRUs, col. 4 lines 14-57).

As to claim 69:

Sharrit teaches a change in a kernel of the plurality of kernels results in a change in the software object associated with that kernel (RRUs restructure themselves in accordance with the configuration information, col. 1, line 54 - col. 2, line 58).

As to claim 29:

The rejection of claim 13 is incorporated herein in full. Additionally, Sharrit further teaches reconfigurable multi-protocol communication (support new and modified signal formats, support wireline and wireless communications, col. 8, lines 45-51; col. 10, lines 46-50), interconnect structure and attribute value (see Figs. 6-7 and associated text).

As to claims 35 and 36:

Refer to claims 16 above for rejection.

As to claims 49-50:

Refer to claims 51 and 52 above for rejections.

As to claims 58, 64, and 70:

Refer to claims 57, 63, and 69 above, respectively, for rejections.

As to claim 37:

It is basically a program product claim of claim 29, thus note claim 29 for rejection. Note the equivalence of instantiating/creating.

As to claim 38:

Note discussion of claim 16 and the equivalence of the plurality of standards / plurality of protocols.

As to claim 39:

Search, code generation unit, finger, uplink and downlink objects are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement search, code generation, finger, uplink, and downlink functions, with corresponding software objects, in the system of Sharrit.

As to claim 41:

Refer to claims 25 above for rejection.

As to claims 59, 65, and 71:

Refer to claims 57, 63, and 69 above, respectively, for rejections.

As to claim 43:

The rejection of claim 13 is incorporated herein in full. The combination of Sharrit and Barners further teaches the parsing and producing steps (Barners, Figs. 2-4 and the associated text). Also, Barners teaches each kernel is designed to

perform a specific processing function and is capable of running simultaneously with any of the plurality of kernels (Barners, Figs. 2-4 and the associated text).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sharrit with Barners because would have managed the operation of a coprocessor in a virtual memory type data processing system in which an Input/Output channel and an Input/output channel controller interconnect the coprocessor to the main processor and system memory.

As to claim 45:

Sharrit teaches function or procedure (processing functions) [See col. 1, line 54 - col. 2, line 58].

As to claims 60, 66, and 72:

Refer to claims 57, 63, and 69 above, respectively, for rejections.

As to claim 46:

Refer to claims 13 and 43 for rejection.

As to claim 48:

Refer to claim 45 above for rejection.

As to claims 61, 67, and 73:

Refer to claims 57, 63, and 69 above, respectively, for rejections.

As to claim 74:

Refer to claim 13 above for rejection.

As to claims 1-3:

Refer to claims 13-15 above, respectively, for rejection.

As to claim 4:

Sharrit teaches a hardware kernel in the plurality of hardware kernels is configurable in accordance with a communication protocol (transmit/receive signals into/from wireless communication channel) [Col. 2, lines 6-11].

As to claims 5-8:

Refer to claims 25-28 above, respectively, for rejections.

As to claim 9:

Refer to claim 22 above for rejection.

As to claim 10:

Sharrit teaches a software object in the plurality of software objects is a matched filter object or a combiner object (combine RRus/functions, col. 8, lines 17-40). It

is noted that the two alternatives linked by "or" is interpreted as requiring only one.

As to claim 11:

uplink and downlink are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement uplink and downlink functions, with corresponding software objects, in Sharrit.

As to claims 53-54:

Searcher, finger, and matched filter objects are typical functions of wireless communication. Sharrit teaches configuring the communicator to implement various functions of wireless communication. Therefore, it would have been obvious to implement searcher, finger, and matched filter functions, with corresponding software objects, in the system of Sharrit.

As to claims 56, 62, and 68:

Refer to claims 57, 63, and 69 above, respectively, for rejections.

As to claim 30:

Barners teaches at least two software objects in said plurality of software objects have a hierarchical relationship [See Fig.4 and the associated text].

As to claim 31:

Barners teaches an application Program that includes software calls to the plurality of software objects [See Fig.4 and the associated text].

As to claim 32:

Barners teaches developing a software virtual machine to process said application program [See Figs. 2 and 4 and the associated text].

As to claim 33:

Refer to claims 17 above for rejection.

As to claim 34:

Barners teaches issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels [See Figs. 2 and 4 and the associated text].

Indication of Allowable Subject Matter

3. Claims 12, 23, 24, and 40 appears to be allowable over the prior art of record, subject to the results of a final search by the Examiner.

Response to Arguments

4. Applicant's arguments with respect to claims 1-11, 13-22, 25-39, and 41, 43, 45, 46, and 48-74 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments are substantially directed to the amended subject matter. The amended subject matter is addressed above with respect to the discussion of independent Claims 1, 13, 29, 37, 43, 46, and 74.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the

advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

5. Any inquiry or a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VAN H. NGUYEN whose telephone number is (571) 272-3765. The examiner can normally be reached on Monday-Thursday from 8:30AM- 6:00PM. The examiner can also be reached on alternative Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HYUNG S. SOUGH can be reached at (571) 272-6799.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VAN H NGUYEN/
Primary Examiner, Art Unit 2194